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ABSTRACT

This is the third in a series on "Supervisory Strategies in Clinical Experiences." It contains three papers. The first, "Interaction Analysis in Teacher Education: A Review of Studies," by Norma Furst, concentrates on those studies which were designed to teach the Flanders behavior recording technique to preservice educators. These are divided into early studies, attitude studies, the Ohio State University study, and studies in secondary education programs, with an additional section on future research areas. The second paper, "Classroom Observation Systems in Preparing School Personnel," by J. T. Sandefur and Alex A. Bressler, starts by setting out the case for observation systems in evaluating teacher effectiveness and by defining the terms used. Selected classroom observation systems are described, including affective systems, cognitive systems, and multidimensional systems. The third paper, "Supervisory Conferences in Selected Institutions," by Donald J. Johnston, describes four supervisory conference procedures resulting from a study carried out by the author and four consultants. Four supervisory conferences were recorded on videotape at each of four universities (Temple, UCLA, Stanford, and the University of Illinois) and analyzed to identify supervisor behaviors and institutional characteristics. (MBM)

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Interaction Analysis in Teacher Education: A Review of Studies

Norma Furst

Classroom Observation Systems in Preparing School Personnel

J. T. Sandefur and Alex A. Bressler

Supervisory Conferences in Selected Institutions

Donald P. Johnston

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PREFACE

Until recently teacher education programs relied upon the traditional sequence of observation, participation, and student teaching to provide the necessary practice in learning to teach. The focus was often blurred, the analyses opinionated, and the feedback distorted or vague. They were all we had, however, and supervisors in schools and colleges labored mightily with inadequate tools.

The development of conceptual tools for the analysis of teaching has now opened up the possibility of selective analysis of specific aspects of a teaching situation. Video and audio recorders have made it possible to play back samples of classroom interaction as a basis for analytical conferences. Role-playing techniques have been refined and extended to become complex, simulated situations supported by carefully coordinated media systems.

The resources are now available for the development of a competency-based and systematically designed teacher education program. They also make possible a great variety of improvements in any type of program. As contributions to the literature reporting on these resources, the Association of Teacher Educators and the ERIC Clearinghouse on Teacher Education (see page 49) decided to publish jointly three monographs (issued as ATE Research Bulletins) comprising a series on "Supervisory Strategies in Clinical Experiences."

Interaction Analysis: Selected Papers (Research Bulletin 10) is the third in the series. Norma Furst of Temple University, in "Interaction Analysis in Teacher Education," has reviewed significant projects designed to teach the behavior recording, or interaction analysis, technique to teachers in training. J. T. Sandefur and Alex A. Bressler of Kansas State Teachers College, in their paper on "Classroom Observation Systems in Preparing School Personnel," describe the more important affective, cognitive, and multidimensional systems and their use in preservice teacher education. This paper was originally commissioned by the ERIC Clearinghouse.

Donald P. Johnston of the United States International University (San Diego) reports here on a special project undertaken on behalf of the ATE Research Committee in which he investigated the use of microteaching and interaction analysis in "Supervisory Conferences in Selected Institutions." His research was done under a grant from the U.S. Office of Education (Project No. 8-D-069). Dr. Johnston extends appreciation to Donald Grandgenett and Elizabeth Hunter for their interest, encouragement, and suggestions during the planning

phase of the project; to Norma Furst, Jimmie Fortune, Phillip Halfaker, and Robert Schuck, who contributed many ideas which are incorporated in the report; and to the contact persons at the universities he visited: Robert Coff at Stanford, William Johnson at the University of Illinois, John McNeil at UCLA, and Gertrude Moskowitz at Temple University.

The first two bulletins in this series were *Simulation as an Instructional Alternative in Teacher Education* (Research Bulletin 8) by Donald R. Cruickshank of Wheelock College; and *Microteaching: Selected Papers,* which included contributions by James M. Cooper and Dwight W. Allen of the University of Massachusetts; and by Robert F. Schuck of the University of Pittsburgh.

The ideas presented in this bulletin and its companions in the series are not necessarily those of the Association of Teacher Educators or the ERIC Clearinghouse on Teacher Education and its sponsors.*

The ATE and the Clearinghouse are grateful to all those whose efforts have made this series possible. They hope the ideas expressed may be of special value to those who have some responsibility in developing programs of clinical experiences which exemplify the ATE *Guide to Professional Excellence.* If so, their purpose will be well served.

Dorothy M. McGeoch
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ATE Communications Committee

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ERIC Clearinghouse on Teacher Education

November 1971

Technical editing and production were under the supervision of Linda Booth of the ATE staff; Geraldine E. Pershing of the NEA staff; and Margaret T. Reagan, ERIC Clearinghouse on Teacher Education staff.

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Interaction Analysis: Selected Papers
ATE Research Bulletin 10

is the third in a series on
"Supervisory Strategies in Clinical Experiences"

Other Bulletins in the Series

Simulation as an Instructional Alternative in Teacher Preparation
ATE Research Bulletin 8

Microteaching: Selected Papers
ATE Research Bulletin 9

NORMA FURST

Interaction Analysis in Teacher Education: A Review of Studies

The recent history of both educational research and teacher training has seen the use of some new and innovative techniques and designs. One of the newer approaches has been the use of descriptive category systems as a tool for collecting specific, relatively objective data of teacher and pupil behaviors as they are manifested in classroom settings. Other research efforts have concerned themselves with using these behavior recording tools to determine teacher effectiveness by relating specific teaching behaviors to specific pupil outcomes. Studies have also been mounted to determine the effects of training teachers in the use of these techniques. (Efforts in this area have included training programs for both preservice and in-service teachers.)

This review will concentrate on those studies which were designed to teach the behavior recording (interaction analysis) technique of Ned Flanders (1) to preservice educators.

Early Studies

The first project in which Flanders' interaction analysis technique was taught to undergraduate students was undertaken by Hough and Amidon (11) at Temple University. The subjects were student teachers in the secondary education program. The investigators taught interaction analysis (IA) to one group of student teachers, while the control group was trained in the application of learning theory (LT) to teaching. Both groups received two hours of lecture and two hours of clinical experiences per week for one semester. In the control (LT) group, the laboratory exercises encompassed both learning-theory type experiments (e.g., nonsense syllables, gestalt figures) and role-playing experiences in which students planned, executed, and evaluated lessons which illustrated the use of learning-theory principles.

The experimental group was trained in the use of Flanders' interaction analysis technique as a tool for analyzing pupil and teacher behaviors in the classroom in a descriptive way. Their clinical experiences consisted of practice in recording teacher-pupil interaction from audiotapes of classrooms. Skill in interpretation of the

interaction analysis data (matrix interpretation) was included. The role-playing sessions for this group consisted of students attempting to control their behavior by predetermining the interaction pattern they wanted to achieve, executing the lesson, and then analyzing the resultant data. Further training was provided to give the student teachers practice in performing patterns that have been found to be related to pupil achievement and attitudes (5).

In the report of their project, Hough and Amidon found that college supervisors rated the student teachers who had learned interaction analysis higher than student teachers who had been taught learning theory (based on final grades and final evaluation forms). They also reported that student teachers in the experimental group had undergone significant changes in a positive direction in their attitudes toward teaching as measured by the Teaching Situation Reaction Test. The control group showed no such significant changes in attitude. The changes in the interaction analysis group also seemed to be related to low scores on the Rokeach Dogmatism Scale. Thus less rigid students, i.e., those with relatively more open belief-disbelief systems, who were trained in the use of interaction analysis tended to have more positive attitudes than did the others.

In another study, Kirk (15) trained fifteen elementary education student teachers in the use of interaction analysis during several sessions of a student teaching seminar. Fifteen other student teachers participated in a traditional type of student teaching seminar. Teachers from both groups were observed in their classrooms. Kirk reported that the students in the experimental group tended to talk less and give fewer directions than those in the traditional group. The IA teachers also responded more often to pupil-initiated questions with a question. Moreover, by the end of student teaching, they seemed better able to resist the tendency to become more direct than did the control group. Pupils of the experimentally trained student teachers saw these teachers as becoming more indirect in their behavior and talking less as the semester progressed. These pupil perceptions of their student teachers did not exist in the control group. Kirk's experimental student teachers also used more varieties of behaviors—indirect at times, direct at other times—than did the control teachers. Kirk further found that subjects in both groups tended to become more like the "average" social studies teacher studied by Flanders (5) than like the "indirect" teachers as time progressed during the semester.

Furst (6) did a follow-up study to the Hough-Amidon experiment. She observed student teachers in secondary schools who had been

involved in courses similar to the original "learning theory and interaction analysis" project. She had three groups of student teachers, one taking the LT course concurrent with student teaching, one taking the IA course concurrent with student teaching, and the last having had an IA course prior to their student teaching. Whereas Hough and Amidon used supervisors' ratings and paper-and-pencil attitude tests as criteria measures, Furst was concerned mainly with performance differences. She used the Verbal Interaction Category System (VICS)—a modification of the Flanders system, developed by Amidon and Hunter (3)—to observe the student teachers' classroom behaviors.

In general, her findings showed that students in the experimental sections (IA trained) used more total acceptance of pupil ideas and behaviors and less total rejection of pupil behaviors than did the LT-trained student teachers. Students trained in IA also tended to use more than token acknowledgment of pupils' ideas and spent more time clarifying and using their pupils' ideas. Although there were some differences in teaching behaviors, depending on the timing of the interaction analysis training, the differences noted here were the same for both experimental groups when compared with the control group.

Attitude Studies

Romoser (20) studied differences in the attitudes of education students who had three class periods of instruction in interaction analysis. She found that even such a short period of training changed their attitudes toward "lenient tolerance" as measured by scales she developed from the Minnesota Teacher Attitude Inventory (MTAI) and the Psychological Inventory Flexibility Scale.

Zahn (26) investigated the effects of using interaction analysis in supervision. His work involved elementary education majors. In the experimental group, student teaching supervision was done, using interaction analysis data as feedback. The control group had conventional supervision and traditional student teaching seminars. Zahn found that, at the end of student teaching, the student teachers who had been supervised with interaction analysis reflected more positive attitudes toward teaching than their own cooperating teachers and the student teachers who had been supervised by conventional means. Undergraduates whose cooperating teachers held less positive attitudes toward teaching than their own were better able to resist this negative influence when they had been supervised with IA. Open belief systems also seemed to be a factor in the more positive attitude changes.

Gellman (8) did a follow-up study of a sample of Zahn's students after they had completed a full year of regular classroom teaching. He found that attitude differences persisted between the control and experimental groups. He also found behavioral differences as recorded by IA data collected from tapes made in the classrooms of the teachers. The teachers who had originally learned instruction analysis as undergraduates showed more indirect patterns of behavior than did the others, although they had no further instruction.

Moskowitz (19) studied the effects of training in interaction analysis on the attitudes of student teachers and their cooperating teachers, as well as the effects on their cooperating teachers' classroom behavior. Her secondary-level student teachers were trained in much the same fashion as the groups reported by Furst (6) and Hough and Amidon (11). The training for the cooperating teachers consisted of ten short sessions in which the use of IA in supervision was stressed. Moskowitz found that trained cooperating teachers showed significantly more indirect patterns of teaching. The group composed of IA-trained student teachers working with IA-trained cooperating teachers also showed significantly more positive perceptions of the teacher-student teacher relationship.

Ohio State University Study

A large-scale project was undertaken at the Ohio State University (10; 13; 17; 12) with a junior course in general methods for secondary education majors. This study employed a complicated design with a number of different treatment variables. In one type of class, students were taught the basic concepts of interaction analysis and were given practice in the use of a variety of teaching behaviors in a series of microteaching episodes (using peers rather than children). Two weeks of the semester were devoted to observation and participation in public schools. Students were assigned to classrooms in pairs for the purpose of observation and mutual feedback.

In the second group of college classes, students received training in analyzing teaching behaviors without using specific category systems. Similar microteaching and school experiences were provided. Students were encouraged to use the results of the class analysis of audiotapes to discuss their own teaching. With similar instructional techniques in a third group of classes, students studied human relations or participated in dyadic instruction using the Human Development Institute's programmed materials.

During the last phase of the courses, students planned, taught, and evaluated a half-hour simulated microlesson. Interaction data for these lessons were collected using a 13-category modification of the original Flanders instrument.

Students in the course which had interaction analysis as its focus demonstrated more praise and encouragement and more acceptance and clarification of student ideas. They gave fewer directions and used less criticism than students in the other groups. Furthermore, they used less corrective feedback and solicited less student response which was directly in response to the teacher. Pencil-and-paper tests on human relation skills yielded no clear-cut results. However, differences in teaching behaviors as observed in the simulated teaching conditions clearly favored the group trained specifically in interaction analysis.

In order to test retention and transfer of teaching behaviors from the college classroom to actual classroom teaching, a representative sample of students from the two groups who had received instruction in analyzing behaviors (interaction analysis or unstructured observations) were observed in their student teaching the following year. Thirty of the original 168 students who had been trained in interaction analysis and 30 of the original group of 252 students who had not had interaction analysis training were observed six times during their student teaching experience. Analysis of the data indicated that, in general, the IA-trained students continued to use more indirect teaching patterns than did the control group of students a year after the original instruction.

Studies in Secondary Education Programs

An intensive three-semester study of training in interaction analysis with secondary undergraduate students was done by Amidon and others (4). Student teachers and cooperating teachers were trained in either interaction analysis or learning theory. They were divided into four groups: (a) student teachers trained in IA working with cooperating teachers trained in IA, (b) student teachers trained in IA working with cooperating teachers trained in LT, (c) student teachers trained in LT working with cooperating teachers trained in IA, and (d) student teachers trained in LT working with cooperating teachers similarly trained.

For the semester they were student teaching, the college seniors received six hours a week of instruction—two hours of lecture time, two hours of laboratory time, and two hours of student teaching

seminar time. The content and skills revolved around either IA or LT. The final report of this project included an excellent week-by-week summary of both courses, accompanied by a compendium of skill sessions, role-playing exercises, and sensitizing experiences used with both groups.

Cooperating teachers had participated in ten sessions of work in either principles of learning theory as they apply to supervision or the use of interaction analysis as a supervisory tool. Their training took place the spring prior to beginning the project in the following fall semester. No follow-up cooperating teacher training was attempted during the three semesters of data collection.

College supervisors' ratings of the student teachers, pupil perceptions of the student teachers, and data about student teachers' attitudes and teaching behaviors were collected and analyzed. The only clear-cut conclusions which may be drawn from the results indicated that student teachers trained in interaction analysis used more indirect teaching patterns at the end of their student teaching experience than student teachers not so trained. This was true regardless of the training of their cooperating teachers. Null hypotheses regarding pupil perceptions, student attitudes, and college supervisory ratings could not be rejected.

Simon (23) used students from the Amidon group in her study of teacher behavior in favored as compared to nonfavored classes. She found only one difference in the student teachers' behavior in the favored class: They tended to use more praise in this setting than they did when working with pupils they did not favor. However, she also reported a number of differences in student teaching behaviors due to training. Those student teachers trained in IA used more indirect behaviors in their favored classes than did the teachers trained in the more conventional fashion.

Johnston (14) reported the results of a study with undergraduate secondary school student teachers, some of whom were taught IA and some who were not. These groups were further divided into students using IA feedback about their own micro-taught lessons and those students who received traditional supervisory analysis of their microteaching. MTAI data and behavior change data were collected. He concluded that self-supervision (using IA) tended to promote indirect teaching and higher scores on the MTAI. However, he found no significant relationship between teachers' perceptions of the percentage of their indirect behaviors and the actual observed behaviors in any group.

A Common Focus

Regardless of the time involved or the intensity of instruction, these studies have one common focus: the teaching of a methodology for collecting descriptive, relatively objective data within classroom situations. Most of the training designs also concentrated on helping student teachers plan, execute, and analyze their own teaching behaviors. Some studies prescribed teaching patterns and attempted to modify student teaching behaviors to be more consistent with theory and research in teacher effectiveness.

One of the exciting commonalities in the results cited is the fact that, in all cases, there were some significant differences in either attitudes or behaviors of students trained in interaction analysis when they were compared with students not so trained. It would seem that, when interaction analysis is used as a training device, "you get what you train for." This in itself is most unusual and certainly should be a great reward for the efforts of trainers. How many college courses can claim any substantial transfer or retention?

Future Research Areas

However, a fair appraisal of the potential of this innovative training device calls for the discussion and consideration of at least three major areas of concern which are almost inextricably intertwined: (a) What are the optimal conditions for the most effective training? (b) What are the relationships or interrelationships of other factors in producing changes in teaching or teacher behaviors? (c) Most important, what repertoires of behaviors do we want to produce or change in teachers? This really means, what are the most effective teacher behaviors in terms of pupil outcome measures?

The first area raises a host of questions which have yet to be answered. What is the optimum schedule of training? How many sessions? When? Who else needs to be trained? Cooperating teachers? College supervisors? Should supervision be entirely self-directed? Should audio- and videotapes be used? What is the most efficient use of cooperating teacher and college supervisor?

Other questions along this dimension also come to mind. What differences are there on different criteria measures when preservice teachers learn only the mechanical techniques of interaction analysis versus having skill sessions and behavior modification exercises? Further, should the concentration be on describing teaching, self-analysis of teaching behavior, or being given prescriptive teaching exercises? How are teachers best trained for varieties of behavior? Is training for expanded use of praise (Category 2) the same as training for expanded use of questions (Category 4)?

Along with these questions, still others need to be thought about. Although all the previous studies indicated that the trained student teachers did produce more evidence of indirect teaching at the end of sessions than did the nontrained groups, other studies (9) show that normally supervised interns tend to change in that direction, too. This needs study.

The second area also needs careful researching and theory building. Why does interaction analysis training provide for transfer and retention? Hough (10) suggests an "advance organizer" phenomenon. Can this be researched, and what other theories need to be examined?

Other factors within the student teacher and the teaching situation need to be the focus of study. Rosenshine and Furst (22) recently reanalyzed data from several of the studies in terms of the ability levels of the pupils being taught. The data analyzed in this light raises some serious concerns about the interrelationship of training and the ability levels of pupils. Some studies reported here, and others (25), have tried to shed light on teacher personality dimensions, teacher behavior, and pupil product measures. This seems a most fruitful line of investigation.

Of most importance, however, is the third area, both from a research standpoint and from a moral, ethical view. In the final analysis, we want to produce effective teachers, that is, teachers whose students accomplish what society says they should. The entire question of adequately defining teacher effectiveness has yet to be answered.

Studies using interaction analysis training have been concerned with helping preservice teachers have more positive attitudes or behave the way effective teachers "should" behave. This "should" has come from the few studies which have attempted to study the effect of teacher behavior on pupil products (5; 7; 16; 24).

Do we really have enough data to be sure of these behaviors? What different patterns are most effective for different curriculum goals with different students? A comprehensive review and analysis of teacher effectiveness research by Rosenshine (21) raises too many questions for this issue to be taken lightly by either researchers or teacher trainers. We must have much more information about effective behaviors before we may be comfortable with our efforts.

Summary

These questions and concerns should not be construed as being of a negative hue. On the contrary, much exciting work has been done

and is being done in all these areas. Training preservice teachers in the use of interaction analysis is not even a decade old and has already shown promising results.

The challenge to answer the remaining questions is a great one. The potential for service is boundless and much help is forthcoming. The works cited represent just a few of the people involved in the efforts. Most of this work stemmed from the early efforts of Ned Flanders, and he is now in the process of finishing an unusually exhaustive work. It presents not only further insights and theory into the problems but suggestions for using more sophisticated and promising techniques for both the serious researcher and the teacher educator.

It is these two groups working together (or becoming one) that holds the promise for the future. In fact, thanks to interaction analysis for helping many a teacher educator become, at least, a quasi-teacher-researcher!

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J. T. SANDEFUR
ALEX A. BRESSLER

Classroom Observation Systems in Preparing School Personnel

INTRODUCTION

The Case for Observation Systems in Evaluating Teacher Effectiveness

The evaluation of teacher effectiveness has been perhaps the most difficult of all problems faced by the education community. The diverse opinions of authorities as to what constitutes effective teaching has unquestionably retarded and restricted the development of tools designed for uniform assessment of teaching behavior.

A major dimension of the problem revolves around the number of different philosophical and psychological theories of education in the United States. Each new theory has been accompanied by a supportive methodology which has been added to those already in existence rather than replacing one of them. As a result, practitioners have had an almost infinite number of unvalidated theories from which to choose models for their teaching behaviors. It is not surprising, therefore, that teaching has been characterized, not by conformity of method, but by lack of conformity.

One may assume, for example, that the teacher who believes "teaching is telling" would rely far more heavily upon lecture as a teaching technique than would the teacher who believes "teaching is involving students in solving problems." By the same token, the teacher who subscribes to a mechanistic theory of learning would be more likely to present instruction in manageable segments designed to produce factual learnings than would the teacher whose instructional oojectives are to develop broad insights and understandings on a cognitive basis.

Until recently, no generally acceptable system has existed for the study of teaching behavior. As a consequence, the teaching profession has lacked even a uniform terminology to describe teaching, and the evaluation and study of teaching has depended primarily upon the value judgments of the observer. With the advent of classroom observation systems, particularly systems of classroom interaction

analysis, tools have been made available to the education community for the study and assessment of teaching.

The acceptance of classroom observation systems as a tool for researchers in the evaluation of teaching effectiveness has been quite evident. The incorporation of observation systems into programs for the preparation of school personnel, however, has developed much more slowly. The major purpose of this paper is to discuss the use of observation systems in the preparation of school personnel. It first describes the more important observation systems in some detail in three categories: (a) affective systems, (b) cognitive systems, and (c) multidimensional systems. Following this is a discussion of the use of observational systems in the preparation of school personnel, and then a summary and conclusions.

Definition of Terms

For the purposes of this paper, the following definitions of terms have been made:

1. *Effective teaching:* The development of a relationship between the teacher and the student which leads the student to an optimal acquisition of the instructional objectives, e.g., the development of understandings, insights, concepts, attitudes, and the assimilation of factual content.
2. *Classroom observation system:* An organized and systematic attempt to assess and quantify through observation the behaviors of teachers and students engaged in the teaching-learning process.
3. *Affective systems:* Those observation systems which are concerned primarily with the emotional climate of the classroom.
4. *Cognitive systems:* Those observational systems which are concerned primarily with intellectual activities which result in the improvement of cognitive processes and skills.
5. *Multidimensional systems:* Those systems which attempt to assess both the affective and cognitive domains through the observation of classroom behaviors.
6. *Preparation of school personnel:* Those programs at both the undergraduate and graduate levels which prepare elementary and secondary teachers, administrators, counselors, and other specialized teaching personnel.

DESCRIPTIONS OF SELECTED CLASSROOM OBSERVATION SYSTEMS

Direct Observation in Research on Teaching

Medley and Mitzel (19:249) state that the true role of direct observation in research on teacher effectiveness must be one in which there is some attempt made to comprehend the nature of effective teaching. The following analysis or survey of classroom observation systems is based upon the supposition that there are numerous ideas and definitions concerning effective teaching. *Effective teaching* has been defined, as have the terms *affective, cognitive,* and *multidimensional* as they relate to classroom observation systems. Knowing the difficulties one encounters when tacking labels on people, institutions, and systems, the authors have attempted to place classroom observational systems within the definitions of *affective, cognitive,* and *multidimensional.* Openshaw and other reviews (21) have set a precedent for this action.

The authors have summarized some of the major accomplishments in the rapidly expanding field of classroom observational systems. There was no intention to slight anyone or any system, but the purpose of this review is to relate the state of the art of classroom observational systems that aid in teacher education. All systems were developed primarily for research purposes, but some are suited for aiding in the training of classroom teachers and for the rating of in-service teachers. As the introduction indicates, some systems are designed for action research evaluation and are not necessarily directed toward classroom observation for feedback usage in teacher education.

Since affectively oriented classroom observation systems appear to be the most numerous, this survey begins with the affective systems.

Withall, Bales, Flanders, Hughes, and Amidon may be viewed as pioneers of the new emphasis on classroom observation.

AFFECTIVE SYSTEMS

Early Work

The greatest influence on the direction of the development of category systems which measure the affective climate of the classroom has been the work of H. H. Anderson. Anderson developed and used a category system which revealed that the way teachers behave in the classroom does affect the way pupils behave. He divided teacher behaviors into dominative versus integrative be-

haviors, and this concept influenced the work of Withall, Joyce, Flanders, and others whose observational systems are closely linked to Flanders' (27:3). Integrative behavior was that which expanded the children's opportunities for self-directive and cooperative behavior with the teacher and their peers; dominative behavior tended to restrict children's activities and to lead to distracted, aggressive, noncooperative conduct (37).

Anderson based his findings on a study of preschool and elementary school classrooms that involved five teachers. His research led to several important findings. The first was that the dominative and integrative contacts of the teacher set a pattern of behavior that diffused throughout the classroom climate. The second finding showed that if a teacher promoted integrative contacts, the students showed more acts of problem solving, became more voluntary in their actions, and showed more spontaneity and initiative. Third, the dominative teacher had pupils who were more easily distracted from schoolwork, whether complying with teacher domination or rejecting it (11:4).

In 1949, John Withall developed a classroom observation system in which each teacher statement was classified into seven categories according to inferred intent. This simple classification of the teacher's verbal statements proved to be almost identical to the integrative-dominative ratio of Anderson and others (11:5). The Withall System, or Social-Emotional Climate Index, is basically affective except that it includes categories which differentiate problem-structuring statements or questions from neutral statements. Withall defines social-emotional climate as follows:

> . . . Climate is considered in this study to represent the emotional tone which is a concomitant of interpersonal interaction. It is a general emotional factor which appears to be present in interactions occurring between individuals in face to face groups. It seems to have some relationship to the degree of acceptance expressed by members of a group regarding each other's needs or goals. Operationally defined it is considered to influence: (1) the inner private world of each individual; (2) the *esprit de corps* of a group; (3) the sense of meaningfulness of group and individual goals and activities; (4) the objectivity with which a problem is attacked; and (5) the kind and extent of interpersonal interaction in a group (37:348-49).

An analysis of teachers' verbal behavior led to the development of seven categories of statements which teachers utilized in classrooms.

1. Learner-supportive statements that have the intent of reassuring or commending the pupil.

2. Acceptant and clarifying statements having an intent to convey to the pupil the feeling that he was understood and help him elucidate his ideas and feelings.
3. Problem-structuring statements or questions which proffer information or raise questions about the problem in an objective manner with intent to facilitate the learner's problem-solving.
4. Neutral statements which comprise polite formalities, administrative comments, verbatim repetition of something that has already been said. No intent inferrable.
5. Directive or hortative statements with intent to have pupil follow a recommended course of action.
6. Reproving or deprecating remarks intended to deter pupil from continued indulgence in present "unacceptable" behavior.
7. Teacher self-supporting remarks intended to sustain or justify the teacher's position or course of action (37:349).

The first three categories were said to be learner-centered. The latter three were teacher-centered, with the neutral category having no influence on either of the other two (37:349).

By analyzing teacher statements according to these seven categories, an observer can tell whether a teacher is learner-centered or teacher-centered. Once the seven categories were identified, the next step was to ascertain the objectivity, reliability, and validity of the technique. Withall claimed to have developed a technique for assessing the social-emotional climate in the classroom by categorizing teacher statements contained in typescripts made from sound recordings of class sessions. He concluded that classroom climate can be evaluated and described and that teacher statements, when categorized, were valid measures of the social-emotional climate of groups. The climate index was able to present a consistent pattern of verbal behavior. Statements categorized as having positive or negative feelings tended to be reacted to positively and negatively by individuals to whom they were addressed (37:358-60).

Flanders System of Interaction Analysis

While Withall was involved with categorizing teacher talk, he did not introduce the term *interaction*, meaning verbal interaction between teacher and pupil. Classroom interaction analysis is most interested in teacher talk, but it also provides for student talk. Ned Flanders is a major figure in the development of interaction analysis, and it is an important system under the affectively oriented classification. Flanders has written:

> Classroom interaction analysis is particularly concerned with the influence pattern of the teacher . . . . Our purpose is to record a series of acts in terms of predetermined concepts. The concepts in this case refer to the teacher's control of the students' freedom of action. Our interest is to distinguish those acts of the teacher that increase the students' freedom of action from those acts of the teacher that decrease the students' freedom of action, and to keep a record of both . . . .
>
> Interaction analysis is concerned primarily with verbal behavior because it can be observed with higher reliability than most nonverbal behavior (11:18-19).

The Flanders System of Interaction Analysis is probably the best known and most widely used classroom observation system in existence. It is simple enough to be easily understood and can be learned in 12-20 hours. It is presently used by teachers, supervisors, counselors, and anyone else who wants to change his pattern of interacting. The Flanders system is easily adaptable for use in research and as an instructional tool to provide feedback in teacher training. It has been utilized, adapted, and expanded by others devoted to classroom observation, namely, Amidon, Hough, and Fuller.

The Flanders system has only ten categories: seven are for teacher verbal behavior, two are for pupil talk, and one is to denote silence or noise (9:197). The teacher-talk categories are divided into two sections. Four are considered to exert indirect influence on classroom climate and three to exert direct influence:

Indirect Influence Categories
1. Accepts pupil's feeling
2. Praises or encourages pupil
3. Accepts or uses pupil's ideas
4. Asks questions

Direct Influence Categories
5. Lectures
6. Gives directions
7. Criticizes or justifies authority (28:13-14)

Indirect influence encourages the student to participate in classroom discussion, which gives him more freedom to commit himself. When the teacher asks a question, a student is invited to form his own ideas and express his own opinions or facts. The teacher should keep questions general enough to provide the student with the opportunity to formulate an answer. When the teacher uses a student's ideas or accepts an answer and praises him, he encourages the pupil to participate freely.

Direct influence tends to inhibit student initiative and promote compliance. When the teacher lectures, he keeps the students focused on him and his own ideas. The restriction of student freedom through direct teacher influence—lecturing, criticizing, justifying authority, or giving direction—results in less student freedom to act. Direct teacher influence is provided for in category No. 8, which is student response to the teacher. This is often a narrow response to a specific question. It is usually an answer with the teacher in mind. Indirect influence may stimulate student-initiated talk in which his own ideas or questions may be expressed. This is called a broad response by Flanders (28:14; 9:18-19).

Category 10 is for silence, short pauses, and moments of confusion that often occur in classroom interaction.

This system of interaction was designed for class periods in which the students and the teacher are involved in discussing school work.

The Flanders system is coded by the numbers of the ten categories. These numbers, according to the classroom situation, are recorded every three seconds by a trained observer. All he needs to write down is the number of the category that is occurring during a specific period of classroom interaction. A number must be written down whether the category changes or not. In this way the observer will have a record which will allow him to infer the classroom climate and to describe the teaching style (9:20).

When the record is compiled, an observer may read down the column and get an idea of the sequence of verbal action that occurred during the time period allotted for observation. It is somewhat difficult to obtain a total pattern of a teacher's verbal behavior from the columns of figures. Therefore, a grid or matrix is utilized to reveal patterns of teacher-student interaction. It may reveal the pattern of methods that a teacher uses with his class. The matrix may give a basis for determining the structure of the classroom when it provides information about student talk. The matrix may also inform the observer how the teacher reinforces different student behaviors and how the teacher involves his pupils in discussion (28:20-21).

The matrix for the Flanders system is made up of 100 cells—10 cells in 10 rows. Two Flanders behaviors are represented in each cell; each tally in the cell represents a behavior pair. One half of the pair is one of the Flanders categories, the other half is another category. For example, when a teacher responds to a student idea (9) with praise (2), cell 9-2 receives a tally (28:2).

The basic Flanders system has proved to be a popular tool which others have utilized in their own research and in building programs to advance teacher education.

Coping Analysis Schedule for Educational Settings (CASES)

Robert L. Spaulding states that there has been a problem in educational research that concerns the measurement of teacher-pupil transactions in classroom situations. His affectively oriented Coping Analysis Schedule for Educational Settings was developed over a period of six years and involved about one thousand case studies in ongoing classrooms. CASES is used to observe the overt behavior, both verbal and nonverbal, of children in the classroom and in other school settings. It consists of thirteen categories of "coping" behaviors which are categorized on the basis of descriptive statements (34:3-4). These thirteen categories are as follows:

1. Aggressive behavior
2. Negative (inappropriate) attention-getting behavior
3. Manipulating and directing others
4. Resisting authority
5. Self-directed activity
6. Paying rapt attention
7. Sharing and helping
8. Social interaction
9. Seeking support, assistance, and information
10. Following directions passively and submissively
11. Observing passively
12. Responding to internal stimuli
13. Physical withdrawal or avoidance.

The more active coping categories are grouped first; the more passive, last. The integrative and dominative behaviors as shown in the work of H. H. Anderson are part of the psychological dimensions used in the development of this schedule (34:2).

CASES has been used in research and teacher training and by supervisors of teachers. Once teachers learn CASES, they can diagnose child behavior and begin to bring about necessary changes in that behavior.

Verbal Interaction Category System (VICS)

The Flanders System of Interaction Analysis is closely related to the Verbal Interaction Category System of Edmund Amidon and Elizabeth Hunter. Amidon and Hunter simply expanded the Flanders

system to provide more detailed information. Their system, which is affectively oriented, is used when the verbal communication of teacher and students is being observed; it is used in research, teacher training, and supervision. VICS contains five major categories for analyzing classroom verbal behavior: teacher-initiated talk, teacher response, pupil response, pupil-initiated talk, and other (1:209-15). Like the Flanders system, the categories of verbal behaviors must be memorized. Once they are learned, the response in tallying is automatic.

The following four categories explain teacher-initiated talk:

1. *Gives Information or Opinion.* This category is marked (recorded) when the teacher gives opinions or facts to the class in lecture form or in brief statements. This category is for explanation, orientation, or the presentation of content.
2. *Gives Directions.* The teacher tells the pupil to take some specific action.
3. *Asks Narrow Questions.* If a specific response to a question is sought and if this can be detected, this category may be used. This category includes narrow questions.
4. *Asks Broad Questions.* This category is for questions that may have no specific answer and that generally call for unpredictable responses. These questions may be thought-provoking and require reasoning or an expression of opinion.

There are two categories for teacher response:

5. *Teacher Acceptance.* The teacher accepts the ideas, behavior, and feelings of the student.
6. *Teacher Rejection.* The teacher reacts negatively to pupil's ideas, behavior, and feelings.

The remaining categories are:

7. *Pupil Response.* The pupil responds to the teacher either predictably or unpredictably, or the pupil responds to another pupil.
8. *Pupil-Initiated Talk.* The student talks either to the teacher or another student without solicitation.
9. *Other.* This category is for silence or confusion (1:209-15).

As in the Flanders system, a matrix is used to plot the amount, sequence, and pattern of verbal behavior in the classroom. It can be

determined from the matrix what kinds of behavior followed other kinds of behavior. Recurring patterns of behavior may also be seen (1:215-19). VICS gives teachers, supervisors, and future teachers a tool to provide objective data on classroom behavior and feedback for growth and change. (1:220).

Assessment of the Quality of Teaching in Elementary Schools

Marie M. Hughes in 1959 experimented with the goal of gaining knowledge about the actions of a teacher in an elementary school classroom (17). The Hughes system, affectively oriented, is both a verbal and a nonverbal record of communication. The method of collecting data may be either live or tape-recorded. Hughes used her system for research work; later it was adapted for use in training student observers in elementary school classrooms (27:Hughes 3; 17; 14). She and her associates developed a comprehensive set of categories in which to classify teacher behavior. There was much similarity to Withall's categories except that Hughes' categories were not restricted to verbal behavior. The seven major categories are:

1. Functions that control
2. Functions of imposition of a teacher
3. Functions that facilitate
4. Functions that serve as personal response
5. Function of positive affectivity
6. Functions that develop content by response
7. Functions of negative affectivity (19:269-71).

The system shows Hughes' interest in group processes in which the leader is the primary agent for setting group climate and for determining where the power within the classroom should reside. The point of greatest emphasis is providing the best learning environment for the group.

After experimenting with her system, Hughes concluded that "teachers' behavior patterns are stable through time . . ." (19:271). The finding was similar for all seven categories, but it differs with findings of other investigators (Medley and Mitzel, Mitzel and Rabinowitz) who found significant variability. The Hughes data was derived from a too limited sample and thus has been found to be not overly objective (19:271).

COGNITIVE SYSTEMS

The Language of the Classroom

The Bellack system is an analysis into linguistic behavior and is therefore cognitive. It is verbal in that it is primarily concerned with the kinds of meanings that are transmitted between teachers and learners. Tape recordings and tapescripts are used as means of data collection (**27**:Bellack, et al. 3-4; **6**).

The speaker is recorded and coded, whether he is the teacher or pupil. The code identifies whether the speaker is structuring (focusing attention on a topic), soliciting, responding to a solicitation, or reacting to a response. The code also identifies "substantive" meaning, i.e., what the student or teacher is talking about, and the "substantive logical" process—defining, stating facts, explaining, justifying, etc. To determine how much the teacher talks and how much the students talk, the sum of the number of lines on the tapescript is counted. Or the area of classroom management can be investigated by counting the number of lines of discourse spent on classroom management (**27**:Bellack, et al. 4-6; **6**).

Bellack used his rules in investigating high school teaching and found that there were cycles in teaching that were consistent in each classroom. This finding he contrasted with a game which teacher and pupils were playing according to explicit rules. Examples of these rules indicate that the pupil does not make regulations. He structures less than he solicits, reacts, or responds; he does not often take the initiative in the classroom. Therefore, the teacher structures, asks the questions, and reacts to the pupils' answers. Bellack's basic cycles of "solicitation followed by response followed by reaction" accounted for 48 percent of all teaching cycles (**6**:204).

These teaching cycles, which occur consistently and indicate a lack of teaching excellence, Bellack hopes can be changed. The rules of the game need to be broken to contribute to a teaching climate in which the teacher is not the most active class member and in which students initiate questions and react to them (**6**:221).

Logic and Strategies of Teaching

In 1959, Smith and Meux and their collaborators began to consider the logical aspects of teaching behavior and to determine a logical structure for teaching subject matter. This system—*A Study in the Logic of Teaching* (**30**)—and its corollary—*A Study of the Strategies of Teaching* (**31**)—are in the cognitive category. They

include the basic ideas that instruction is essentially logical and that identification and descriptions of the various components of teaching behavior must be derived before investigators can determine basic concepts and principles (21:23-25).

The major purpose of the Study of the Logic of Teaching was to develop a means of dividing verbal behaviors of the student and teacher into pedagogical units to be analyzed (21:24). Tape recordings were made of teacher-student interaction which were later coded by two teams of two observers each. The coding units in the Study of the Logic of Teaching are:

1. Episodes, defined as one or more exchanges which comprise a completed verbal transaction between two or more speakers. A new episode is determined by a shift in what the speakers are talking about, which may be a new aspect, or part of a topic, or a complete change of topic.
2. Monologues, defined as a solo performance of a speaker addressing a group. Both are coded but only episodes are analyzed in this system (27:Smith-Meux 3; 30).

The episode is classified into categories that refer to the ideal response required by the verbal behavior (30:36-42). These categories are:

1. Defining
2. Describing
3. Designating
4. Stating
5. Reporting
6. Substituting
7. Evaluating
8. Opining
9. Classifying
10. Comparing and contrasting
11. Conditional inferring
12. Explaining
13. Directing and managing classroom.

A more recent achievement of Smith and his associates—strategies—expands the previous research and presents a new verbal unit, the strategy, which is further clarified through the introduction of the venture and the move.

A strategy is a pattern which occurs in the verbal behavior of the classroom. Strategies are sets of verbal behaviors utilized as a means of attaining certain outcomes or content objectives; as such, they involve goals and the ways teachers act in achieving goals (31:35).

A venture is a unit of classroom talk which consists of a set of utterances pertaining to one topic and one overall goal. There are

nine different ventures, and a new venture is determined by a complete topic change. The venture is more inclusive than the episode-coding units of the Logic of Teaching system (31:5).

Another unit of strategy is the move. The move is the logical relationship that is established between some event, thing, object, or term in the proposition disclosed by the venture in which the discourse occurs (27:Smith, et al. 3; 31).

"Smith and his associates have developed a framework and a set of concepts to describe and analyze classroom discourse associated with achieving content objectives" (21:26). This is the beginning step toward development of a theory of classroom instruction with a basis of a logical analysis of behavior.

MULTIDIMENSIONAL SYSTEMS

Spaulding Teacher Activity Rating Schedule (STARS)

The Spaulding Teacher Activity Rating Schedule is designed to view teachers as they seek to bring about change in the behavior of their pupils. The instrument is a multidimensional observational system designed for observation in three major areas in which change is desired—cognitive, social, or motor. Under each area are listed the specific techniques that are used by the teacher to obtain student responses (35).

Spaulding conducted a comprehensive study that involved 113 categories of teacher-pupil transactions in twenty-one elementary classrooms. He found that three types of teacher variables were linked with pupil performance and self-concept. They were:

1. Supportive, approving, and receptive teacher behaviors which operated as rewards,
2. Aversive or dominative teacher behaviors which had generally a punishing effect, and
3. Limit and goal setting teacher behaviors which tended to clarify, regularize, organize, or further structure the environment for the benefit of pupil performance (35:5).

STARS can be employed reliably in all types of classroom situations with a minimum amount of equipment and personnel. Behavior is coded as it happens, and data sheets can easily be summarized in tabular or graphic form (35:5).

One major drawback to STARS is that it takes two or three weeks to train observers, although once they are trained the reliability of observation is fairly high (35:6).

STARS can be used by teachers to furnish feedback to change

their patterns of instruction. STARS data sheets, when reviewed, may provide a positive effect on teaching.

Multidimensional Analysis of Classroom Interaction (MACI)

This system is based on the Flanders System of Interaction Analysis. It is a system of categories for coding and quantifying the classroom behaviors of teachers and students (15:3).

MACI contains two categories that deal with a teacher's reactions to and use of pupils' feelings. It also contains a category that provides the observer with a code to use when students talk with a level of feeling. This system expands Flanders' categories of student behavior and separates a student's cognitive contribution from his affective contribution. There is a category for student hostility so that when the reader looks at the data he can tell whether the student is exhibiting "fight behavior" in the classroom. This category system also focuses on the teacher's means of involving students in the classroom and allows for determining whether students participate by being called on or whether they volunteer to talk (27:Honigman 3; 15).

Honigman made a study of the works of others and attempted to synthesize elements from various systems into a single category system. His affective and control categories are derived mainly from Flanders and Hughes and his cognitive orientation is based on work by Aschner and Gallagher (4). This synthesis is balanced among the aspects of classroom verbal behavior (affective, control, and cognitive) by using only a single set of categories (15:35-40).

Honigman's system was designed to meet the need for a classroom observational system that covered cognitive, affective, and control features of teacher influence in the classroom in a balanced way:

1. *The Affective Dimension.* The affective dimension of analysis focuses on the "emotional climate" or "mood" that pervades a classroom; and the teacher behaviors and student behaviors which—directly and indirectly—create, communicate, and maintain this mood.
2. *The Control Dimension.* The control dimension broadly examines the nature of the teacher's regulation of his classroom. It provides commentary on classroom organization in general; the amount of structure and direction imposed on students' participation, and the techniques that the teacher uses to establish and maintain this kind of control.
3. *The Cognitive Dimension.* The cognitive dimension focuses on the conceptual nature and level of content-focused activity in the classroom. It is concerned with analyzing the kinds of cognitive behaviors in which both the teacher and his student engage; particularly the techniques employed by the teacher in promoting the kind of student participation observed (15:31).

Each of these dimensions is examined from three different frames of reference—descriptive, analytic, and evaluative:

1. The *descriptive* component of analysis deals with information about the existing state-of-affairs in a classroom in terms of whatever dimension is being examined . . . .
2. The *analytic* component of analysis serves to describe the way in which the observed state-of-affairs in each dimension was brought into being . . . .
3. The *evaluative* component of analysis is directed toward making judgments about the adequacy, quality, or success of the teacher's and/or students' activities in the classroom, in relation to the particular dimension being examined (15:32).

A 20 to 30 minute period of observation is recommended by Honigman. This system has been used for helping teachers improve their teaching in microteaching situations. It also has been used in research and in-service teacher training (27:Honigman 2-3; 15).

Observation Schedule and Record (OScAR)

Medley and Mitzel have been working more than ten years on an instrument known as the Observation Schedule and Record which is primarily a means to quantitatively record data concerning teacher behavior. OScAR began with the development of an observational technique to be used to evaluate the performance of beginning teachers who had graduated from the New York City Municipal College System (21:20). It also began as an adaptation of the work of Cornell (8) and of Withall's Social-Emotional Climate Index. OScAR originally classified the emotional climate and social organization within the classroom; a verbal emphasis was later added to those dimensions. This emphasis, together with social structure and emotional climate, helped produce a more reliable measure of teacher behaviors (21:20). OScAR has run through five adaptations since its development by Medley, Mitzel, and others. OScAR 5V is the latest of these adaptations.

OScAR 5V is an 18-category schedule that has been designed to be used in direct observation of the behavior of teachers while they teach and while their students learn. It records only two sets of verbal behaviors—monologues and interchanges. The interchange is concerned only with teacher behavior, noting how the teacher begins interchange or interaction with a student, then noting how the teacher responds to the student's answer.

This category system is multidimensional in that it has an affective, cognitive, and procedural dimension which shows the amount of time the teacher and students spend on matters other

than classroom content (27:Medley, et al. 3; 19). The tasks of the coder, or classroom observer, using the observation system are as objective as the cues on which discriminations are made clear. The observer, who records the live behavior, does not have the amount of time necessary to think about each classroom action. He must put himself into the place of the students in the classroom. His main job is to record the teacher's verbal behavior, since only four of the eighteen categories are related to the student. OScAR may be used by observers after limited amounts of training (32).

B. R. Smoot claims that "the most important characteristic of this system is that the categories are descriptive rather than evaluative. Since OScAR 5V is a system for measuring teaching behaviors, it is essential that the concepts of measurement and evaluation be understood" (32:22).

The primary value of OScAR 5V is that it provides a language of teacher behavior. It provides a specific feedback concerning just how the teacher performed. It can show many teachers, who are not really aware, the behaviors and patterns of behavior that they use daily in the classroom. OScAR can provide an objective record and display of teaching behaviors as they occurred and a vehicle to modify behavior (32:27).

Characteristics of Teachers

In this work, David G. Ryans (22) deals with relationships among estimates of teacher behavior patterns observed in the classroom; an inventory of estimated teacher characteristics, background, and environmental variables; and observed pupil behaviors (23:67). Observers view and later record teacher-student reaction and interaction in the classroom environment. Ryans wished to classify observational data and relate to it other information about teachers in order to learn patterns of teacher characteristics in relation to conditions of teacher status. An effort was also made (a) to determine the kinds of information that could be used to distinguish between the high-evaluated and low-evaluated teacher, and (b) to investigate the interactions and interrelationships among pupil behaviors and teacher behaviors (23:68).

At the beginning of Ryans' study, a primary set of teacher traits was identified. This identification took place after extensive analysis of prior classroom research, after analysis of reported critical incidents, and after much trial and error involving classroom observation and assessment. An observation and assessment record and a glossary explaining the behaviors that were to be assessed were

formed. The classroom observation record mentioned four dimensions of teacher behavior (**23**:72).

Each teacher, observed by a trained observer using this record, was given a value that extended from 1 to 7 on a scale. The extreme left of the scale signified "harsh" and the extreme right "kindly" with regard to teacher behaviors (**23**:73). Observers had to be carefully selected and well trained, as much depended on the skill which they developed in accurately learning the procedure to use the record. Results also depended on the extent to which important aspects of behavior or situations were samples or were identified.

A year and a half was devoted to developing the classroom observation record, and the staff believed that this time and careful work paid dividends. "The study was able to report quite substantial intercorrelations between observers on different characteristics and on teacher-classroom behavior patterns that subsequently emerged. Reliability estimates were made of the assessments of the several dimensions of observed teacher behavior (for example, 'harsh-kindly,' 'aloof-responsive,' 'stereotyped-original,' 'evading-responsible') based on correlations between the assessments by a first and second observer of the same teacher" (**23**:74).

Separate teacher characteristics schedules were developed and used. One was for elementary teachers, another was for English and social studies teachers, and a third was for mathematics-science teachers. The use of these schedules made it possible to obtain a cross-section of behaviors and characteristics (**23**:79).

A Taxonomy for the Classification of Teacher Classroom Behavior

Many category systems of teacher behavior were analyzed by Openshaw and Cyphert in order to develop a synthesis of the systems for their own four-dimensional category system, which they termed a taxonomy of teacher behavior (**21**). This system may be classified as multidimensional because it is both affectively and cognitively oriented. Verbal and nonverbal types of communication are recorded. The subject of the observation is the teacher, and the methods of collecting data are both live and videotape. The Taxonomy for the Classification of Teacher Classroom Behavior has been used in research but not for teacher training (**27**:Openshaw-Cyphert 2-3; **21**).

After a review of most completed research in teacher behavior in this taxonomy, it was concluded that there were four major dimensions to teacher behavior: a source dimension, a direct dimension, a function dimension, and a sign dimension. "Each of these dimensions of teaching is observable and quantifiable, the

analysis of which provides empirical data about what a teacher does; how he behaves while teaching" (21:44-45).

The source dimension attempts to determine where the behavior comes from—inside the classroom or outside. It indicates the relationships of the student and the teacher—their interaction at a basic level (21:45).

The direct dimension of teaching might also be called the target of teaching. The receiver of the teaching must be identified and classified. The receiver may be an individual, a group within the class, the whole class, or an inanimate object (21:46).

The function of teaching includes any behavior involved with teaching, implying that the purpose a given behavior serves determines function. One task of teaching is that which deals with subject matter or content—that which is to be taught. A second function is the act of maintaining interpersonal relations among those in the classroom in order that content may be taught. A third is to facilitate the learning process (21:45-46).

The sign dimension or mode exists because behavior must be shown in some way to be observed. Thus there is a need for determining the mode of communication between teacher and pupil (21:46).

Openshaw and Cyphert began their synthesis of approaches to the description and categorization of teacher classroom behavior, but they soon became frustrated with the overwhelming task and were forced to compromise. The preceding sketch of their work is a basic result of that compromise (21:149). "The taxonomy is one step toward making it possible to gather such data from which strong knowledge claims might ultimately result" (21:153).

CLASSROOM OBSERVATION SYSTEMS IN THE PREPARATION OF SCHOOL PERSONNEL

The influence of classroom observation systems in programs for the preparation of school personnel has been difficult to assess. Undoubtedly, many teacher education programs have undergone change as a result of new information acquired from classroom observation systems. An assessment of their impact may be premature in view of the fact that observation systems have had their greatest use in research and the results of that research have just begun to be made available to practitioners. Consequently, it is the intent of this part of the paper to present a limited review of ways in which classroom observation systems can contribute to the preparation of school personnel.

The Role of the Affective Domain

Perhaps the greatest contribution of classroom observation systems can be made in undergraduate professional courses in the teacher education curriculum by helping preservice teachers understand the role of affective classroom climate in teaching and learning. Some of the most conclusive evidence that classroom climate can significantly affect both academic achievement and student behavior was provided by Flanders (9). His research indicated that classroom achievement was significantly related to indirect teacher influence (affective influence) on students. As a result of the influence, which restricts the freedom of the student, more effective learning and a lower incidence of behavioral problems have been observed.

A considerable number of research projects have been conducted to investigate the relationship between classroom climate and achievement. Sandefur, accepting the assumption that there was a direct relationship between the academic achievement of students and the amount of indirect influence exerted by the teacher, conducted research to determine whether undergraduate preservice teachers could be trained to use indirect influence in the classroom (24). Using a classroom interaction analysis system developed by Hough (16)—a modification of the Flanders system—in conjunction with videotapes and live classroom observation, Sandefur found that undergraduate preservice teachers who were instructed in the use of indirect influence demonstrated significantly different classroom teaching behavior from students in a control group. The experimental students were rated by unbiased, independent observers as significantly more effective teachers than were their control group counterparts.

In a follow-up study conducted to assess the effects of a year's teaching experience on the teaching behavior of both the experimental and the control group, Sandefur found that student teachers instructed in the use of indirect influence had significantly expanded the use of indirect teacher influence when compared with the control teachers (25). He concluded that experiences in the classroom tended to confirm the use of indirect influence.

From the research cited, it is apparent that there is growing evidence that the climate of the classroom is improved when the teacher is cognizant of the role of the affective and when the teacher exerts predominately indirect influence on the students. It is equally apparent that a classroom observation system such as interaction analysis can serve effectively as an instructional tool, to be used

primarily to identify desirable teaching behavior and to sensitize preservice teachers to its uses.

Various systems of interaction analysis have been used with videotapes of teaching-learning situations. Many teacher education instructors have made use of microteaching in the preparation of teachers. Microteaching in its simplest form is little more than giving preservice teachers an opportunity to teach a group of students, sometimes peers, for short periods of time. Often videotapes are used to provide a feedback of the microteaching experience wherein the student can analyze his own teaching behavior. Increasing numbers of institutions are training preservice teachers in the use of interaction analysis as an aid in the evaluation of their teaching effectiveness.

The greatest contribution of classroom observation systems to programs for the preparation of school personnel is their provision for a systematic means for quantifying teaching behavior. Moreover, there is a flexibility in most systems which permits additions to or substitutions of categories which enable the researcher to quantify those teaching behaviors with which he may be concerned.

Stated another way, classroom observation systems provide the vehicle for measurement of teaching behavior—a vehicle which has not long been available to the teaching profession. Due to the diversity of the categories in the numerous systems developed to this point, it appears that the vehicle is more important than the specific categories the various systems contain.

The paradox of classroom observation systems is that, while the profession now has the tools for quantifying teaching behavior, there is no generally accepted criteria for what constitutes effective teaching behavior. This paradox, it is hoped, will be solved through the use of classroom observation systems in carefully controlled research. Already the results of research using classroom observation systems have focused the attention of teacher education on the importance of the affective climate of the classroom. Indirect teacher influence as a teaching behavior is receiving unprecedented acceptance in the teaching profession, and numerous teacher education programs have included it as one of the skills to be acquired by preservice teachers.

A major challenge of the next decade will be to develop more unanimity in the profession as to what constitutes effective teaching behavior and to develop the categories for observation systems which both quantify and qualify these behaviors.

SUMMARY AND CONCLUSIONS

A number of classroom observation systems have become available to teacher educators recently, most of them within the past decade. It has become generally acceptable to classify them into one of three types: (a) affective systems, (b) cognitive systems, and (c) multidimensional systems.

Although much of the early developmental work in affective systems was done by H. H. Anderson and John Withall, the system developed by Ned Flanders has become the best known and most widely used of all observation systems. The Flanders system, utilizing only ten categories, has been modified and expanded by other researchers. The Verbal Interaction Category System (VICS) developed by Edmund Amidon and Elizabeth Hunter is basically the Flanders system expanded to provide more detailed information. Affective systems have been developed by Robert L. Spaulding, Marie Hughes, and others.

Cognitive observation systems developed by Arno A. Bellack, B. O. Smith, and M. O. Meux are among the best known. Multidimensional systems have been developed by Robert L. Spaulding, Fred K. Honigman, Medley and Mitzel, David G. Ryans, and Openshaw and Cyphert.

A common characteristic of all classroom observation systems, whether affective, cognitive, or multidimensional, is that they require an observer who employs a systematic method of recording teacher and student behaviors. Most, but not all, observation systems limit observation to verbal behavior.

The primary impact of classroom observation systems to date has been their use as a research tool because of their objectivity. Secondary impact has been in teacher education programs in which preservice teachers are exposed to observation systems, particularly classroom interaction analysis, as a means of sensitizing them to specific teaching behaviors such as those encompassed by the term *indirect teacher influence.*

Classroom observation systems are also being used in conjunction with preservice laboratory activities, variously called microteaching, macroteaching, role-playing, etc. These preservice teaching experiences are often videotaped, and an observation system is employed to provide feedback for the prospective teacher.

Perhaps a less obvious but highly important contribution of classroom observation systems has been their influence in moving teacher education programs away from the traditional theory-oriented courses of professional education and toward laboratory-

oriented courses with early teaching experiences and contact with students.

This examination of classroom observation systems and their uses in preparing school personnel has led the authors to draw the following general conclusions:

1. Classroom observation systems have received their greatest usage by researchers and have not yet achieved widespread usage in either preservice or in-service teacher education programs.

2. The best known observation systems and those receiving the most widespread use are those dealing with the affective climate of the classroom.

3. Classroom observation systems can be used profitably in conjunction with microteaching, role-playing, and other preservice laboratory teaching experiences to provide feedback for teachers in training.

4. Classroom observation systems, with their emphasis on teaching behaviors, have exerted an influence in teacher education programs leading to more laboratory experiences in the preservice program.

5. Classroom observation systems concerned with the affective climate of the classroom are contributing to the "humanization" of teaching through their emphasis on indirect teacher influence.

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DONALD P. JOHNSTON

Supervisory Conferences in Selected Institutions

Historically, findings from educational research are not utilized by practitioners until considerable time has elapsed after the findings become available, and then their utilization is usually on a limited basis. The difficulties imposed by locating and interpreting research reports have maintained the gap between the appearance of results of research and their application in our schools. Supervisors of student teachers, especially supervising teachers in the schools, have had little opportunity for formal training in or information about effective supervisory techniques.

Supervisors of student teachers are confronted by many possible areas of concentration in their attempt to help the students become more effective practitioners. The large number of areas worthy of attention arises from the complexity of teaching behavior which is influenced by factors such as the attitudes, knowledge, personality, ability, and motivation of both student teacher and pupils. Supervisors of student teachers may choose to concentrate on these factors individually, thereby hoping to influence the learning situation. However, many supervisors have chosen to focus directly on the teaching behavior of student teachers and have used a wide variety of supervisory techniques for producing changes in that behavior when they thought it desirable to do so. These efforts have met with varying degrees of success.

At the annual meeting of the Association for Student Teaching (now Association of Teacher Educators) in February 1968, it was the judgment of the Committee on Research that information dealing with the supervisory techniques used in microteaching and interaction analysis should be made available to supervisors. The study reported here is the result of work by the principal investigator and the four consultants who assisted him.

The principal investigator traveled to the sites of four university programs, identified in conference with the project consultants, to videotape supervisory conferences for subsequent analysis with project consultants. Four supervisory conferences were recorded at each site. The institutions visited were Temple University, the University of California at Los Angeles, Stanford University, and the

University of Illinois. (This report does not identify the universities where data obtained from them are analyzed.) The supervisory conferences that were videotaped were primarily those already scheduled by university supervisors on the dates of the principal investigator's visits. To reduce artificality, the television camera was focused on the conferees, recording was begun, and the principal investigator left the room until he was notified that the conference was concluded. No time limits were imposed; conferences ranged in length from 8 to 50 minutes. While on each campus, the principal investigator spoke with administrators and supervisors to determine the character and procedures of their student teaching program.

After the videotapes were collected, the principal investigator met with the project consultants to analyze the tapes. Each tape was seen twice. The observers listed those supervisor behaviors they felt were integral to the method of supervision employed. The principal investigator, with advice from consultants, drew up a composite list of supervisor behaviors for each program. He also assessed certain characteristics of the conferences at each institution and constructed a comparative chart to show likenesses and differences.

SUPERVISORY CONFERENCE PROCEDURES—PROGRAM ONE

Student Teaching Program One provides extensive training for student teachers in the system of interaction analysis originated by Ned Flanders and expanded by Edmund Amidon and Elizabeth Hunter in 1966. The system consists of seventeen categories which describe different kinds of teacher and pupil verbal behavior. To use the system, an observer (who may be the supervisor or the student teacher himself if he listens to his lesson on audiotape) records, at 3-second intervals, the number of the category (1-17) that best describes the behavior occurring at that moment. The category numbers are recorded in columns from the top to the bottom of the page, thereby preserving the sequence of events. These numbers are then put into a matrix which allows for organization and interpretation through examination of percentages, totals, and ratios. After interaction analysis data have been obtained for a particular lesson, the supervisor and student teacher confer. The following procedures were drawn from an examination of four supervisory conferences in Student Teaching Program One:

Supervisor Behaviors

1. Asks for student teacher's goals.
2. Asks for student teacher's planned procedure.

3. Asks for summary of behaviors from student teacher in interaction analysis terms.
4. Asks student teacher to analyze matrix and patterns.
5. Asks student teacher to compare goals with interaction analysis data.
6. Examines student teacher's familiarity with aspects of teacher behavior.
7. Analyzes matrix item by item by asking student teacher for interpretation.
8. Asks student teacher for reactions to data on feeling and action levels.
9. Asks for student teacher's planned commitment for future lesson behavior.
10. Asks student teacher for extension of interaction analysis data through application in techniques and procedures.
11. Asks for "any other comments" from student teacher.
12. Supports student teacher's commitments to interaction analysis.

Interpretative Expansion

1. Demonstrates a great deal of rapport establishing behavior.
2. Asks what interaction analysis patterns would be desired to help achieve goals-objectives.
3. Reviews interaction analysis matrix with student to determine what patterns were dominant.
4. Provides matrix interpretation for student.
5. Compares actual patterns to patterns student had expected.
6. Provides verbal and nonverbal support.
7. Asks student to analyze the classroom behaviors which would have resulted in matrix patterns.
8. Asks what unexpected behaviors appeared on the matrix.
9. Encourages lesson analysis in terms of reteaching and changes student would make.
10. Raises issue of percentage of teacher talk to student talk.
11. Makes few judgmental and evaluative statements.

Analysis and Summary

Supervisor behavior was very heavily oriented toward social-emotional, supportive-type climate dimensions, heavily rooted in questions about the data coming from the matrix of the teacher's own behavior. The student teacher was guided through questions to make inferences from matrix data. The supervisor was questioner,

clarifier, and summarizer of the student teacher's ideas. Some attempt at practicing different behaviors was made by the student teacher. Insights seemed to appear in the student teacher's verbal behavior, with supervisory questioning, reflecting, and accepting.

Perhaps the most observable characteristic of the Program One conferences was the Socratic style of questioning. The supervisor usually began by soliciting the aim of the lesson and the desired style of the lesson from the trainee. Then the supervisor proceeded to go through a directed discovery process with the trainee, using a data base focused on the verbal behavior of the teacher as shown by the interaction matrix. The supervisor utilized the "shock" aspect in a kind, rewarding, unbiased manner to demonstrate to the trainee when necessary that desired verbal behaviors were not acquired. The depth of the verbal analysis from the data appeared outstanding, even though the supervisor appeared rather impersonal in discussing goal-oriented behaviors as revealed by the data. Seldom were there any comments about content; the students were carried through a warm but objective analysis of their purposes and resultant verbal behaviors.

SUPERVISORY CONFERENCE PROCEDURES–PROGRAM TWO

In this program, student teachers are trained in the formulation of behavioral objectives. During a preobservation conference, the student teacher and the supervisor reach an understanding of what pupil behavior the student teacher will seek in his lesson and what percentages of perfect pupil response he will accept as evidence of success. While observing the subsequent lesson, the supervisor records data, usually in longhand, describing the interaction between teacher and pupil when the target pupil behaviors are involved. These data are then examined in a postobservation conference with the student teacher. Four postobservation conferences were examined to provide the following behaviors:

Supervisor Behaviors

1. Reports data gathered.
2. Asks student teacher to interpret data.
3. Asks questions about data for student teacher's interpretation.
4. Compares data with percentage expectations of student teacher.
5. Raises problem, gives solution.
6. Raises problem, probes for student teacher's solution.
7. Encourages commitment from student teacher for future teaching behavior.

Interpretative Expansion

1. Asks for goals and objectives of lesson.
2. Directs discussion to student's analysis of extent to which goals-objectives were achieved.
3. Focuses conference on content.
4. Establishes rapport with verbal and nonverbal behavior.
5. Provides suggestions for reteaching lesson.
6. Directs student in planning for next lesson.
7. Provides content alternatives.

Analysis and Summary

Businesslike guidance was given through the data which came from the preplanning and the supervisor's and student teacher's collection of student product data during the lesson. Many of the supervisor's questions were narrow questions of data interpretation; the student teacher was told what was good and was given suggestions for the future, both in terms of the actual lessons and his own perceptions of student ability. Student teachers used much of the current language of education. There was some evidence of compliant behavior. The entire conference was very content-oriented; little process was discussed.

Perhaps the most observable characteristic of the Program Two Conference was the focus on the manipulation of content. The conference centered around the behavioral objective analysis and sought to utilize data on pupil achievement. There were frequent uses of phrases such as "gain feedback from the data," "state the behavioral intent of the lesson," "supply more opportunity for content practice," "we," and "do you suppose." In the conferences the supervisors tended to appear retiring but still talked nearly as much as the trainees, beginning first with feedback from the data and then going into specific suggestions on content manipulation. The reinforcement was somewhat automatic, and the behavioral references were few.

SUPERVISORY CONFERENCE PROCEDURES—PROGRAM THREE

Program Three provides microteaching experience immediately before students begin student teaching in assigned schools. The program focuses on technical skills which are discussed and modeled on videotape in a methods course taken the first half of the semester in which student teaching begins. After each skill is presented in

class, students schedule 10-minute lessons which are taught to five university freshmen. These are videotaped. Each lesson concentrates on the skill on which a portion of the methods course is focused. A supervisor watches the lesson in progress and confers with the student teacher about it during the videotape playback immediately after the lesson is concluded. Before the conference begins, pupils complete an evaluation form which is then available to the student teacher and supervisor for consideration.

Supervisor Behaviors

1. Looks at pupils' evaluation with student teacher.
2. Asks student teacher to interpret and react to pupils' evaluation.
3. Asks student teacher to discuss his technical skill procedure.
4. Interprets pupils' evaluation concerning technical skill.
5. Suggests looking at tape, turns on videotape recorder, and looks.
6. Suggests procedural alternatives.
7. Focuses student teacher's attention on aspects of taped lesson—"Watch what happens when . . . ."
8. Replies to student teacher's request for suggestions.
9. Moves tape along (fast forward) to other segments of lesson after asking student teacher if he wants to see anything more on part then playing.
10. Summarizes, gives suggestions.
11. Explores student teacher's interpretation of how pupils responded.
12. Introduces technical skill for next week.

Interpretative Expansion

1. Bases discussion on data provided by pupils and videotape.
2. Provides student teacher with supervisor's interpretation of data.
3. Picks certain parts of tape for comment and analysis.
4. Asks for explanation and interpretation of teaching by student teacher.
5. Keeps conference moving at a rapid pace.
6. Keeps focus on the specific skill under development.
7. Provides somewhat mechanical support of student.
8. Provides rather prescriptive and directive suggestions.
9. Makes evaluative and judgmental statements.

Analysis and Summary

Supervisor behavior was very businesslike. No attempts at supportive, reflecting, Rogerian-type behavior were in evidence. Data from student perceptions were used as a base for discussion along with a videotape of the student teacher's microlesson. There were many evidences of defense-producing behavior by the supervisor—"You should have . . . ," and so forth—with much defensiveness on the part of the student teacher, putting blame for poor performance on either "time factors," "poor preparation," "using or not using the model," or the "instruction sheets." There was evidence of the "Good, but . . ." syndrome in supervision. Praise was used by the supervisor for "being like the model." There was some difficulty in getting the student teacher to recognize a nonmodel, nonspecific skill problem, i.e., use of public criteria during a direction-giving lesson. There was some evidence of compliant behavior on the part of student teachers.

Perhaps the most observable characteristic of the Program Three conference was the use of data. In these conferences both student achievement data and student perceptions of the teacher were explored. There was a noticeable dearth of verbal behavior and a degree of defensiveness which could have occurred as a result of skill training. The supervisors were almost automatic in their reinforcement behavior and as a rule appeared quite impersonal. Emphasis in the conference was on clarifying the lesson objective into a behavioral one, explaining the criticisms of the students, and referring to a model which the trainee had observed. The conferences were hurried, to the point, and very data-oriented. The supervisor was ready to offer an alternative suggestion for each criticism.

SUPERVISORY CONFERENCE PROCEDURES—PROGRAM FOUR

Program Four provides essentially the same kind of microteaching experience as Program Three but during the summer before students enter student teaching (secondary school pupils rather than college freshmen form the classes). The conferences examined here took place after the summer microteaching experience and while student teachers were teaching in schools during the fall semester. Some of the lessons dealt with in the conferences were videotaped and viewed by the supervisor before the conference or with the student teacher during the conference. Other conferences were about lessons observed live by the supervisor. Each of these models is used in Program Four as the supervisor sees fit.

Supervisor Behaviors

1. Listens to student teacher's general description of lesson-teaching problem.
2. Raises problems, asks student teacher to explore.
3. Accepts student teacher's exploration.
4. Suggests procedural solutions.
5. Itemizes and organizes information given by student teacher for his use in interpretation.
6. Restates discussion to this point, then focuses by directing student teacher's attention to other problems.
7. Asks questions implying his preferred procedure.
8. Asks student teacher how representative the lesson he saw was of past lessons.
9. Describes lesson from his data, interprets, makes suggestions for future.
10. Suggests procedure.
11. Asks student teacher to explore his analysis of videotape and to focus on technical skills in that tape.
12. Discusses aspects of videotape as initiated by student teacher, aspects which do not deal with technical skills.
13. Asks about general future procedure.

Interpretative Expansion

1. Establishes rapport through verbal and nonverbal means.
2. Poses questions which encourage students to express their feelings about their teaching situation.
3. Directs focus toward social climate of classroom.
4. Makes evaluative or judgmental statements reluctantly.
5. Provides specific technique or methodological suggestions reluctantly.
6. Directs student questions and concerns back to students for reflective analysis and alternatives.
7. Provides support of student responses and analyses through verbal and nonverbal cues.
8. Encourages discussion and analysis of motivational problems and techniques.
9. Gives content and methodological suggestions.

Analysis and Summary

Supportive behavior was heavily oriented toward social-emotional-supportive climate dimensions, with many reflections, much use of "uh huh" type agreement, and many nonverbal reinforcing

Figure I

COMPARATIVE OVERVIEW OF CONFERENCE TECHNIQUE

Area	Program One (Interaction Analysis)	Program Two (Interaction Analysis)	Program Three (Microteaching)	Program Four (Microteaching)
Focus on process behaviors	In terms of interaction analysis	Light emphasis	Specific, on one skill, etc.	General
Content focus	Special in terms of student-formed objectives	Heavy emphasis	Some focus but rather incidental	General in nature
Case-study approach	Moderate in terms of objectives formed	None	None	Heavy emphasis
Data base used in analysis	All data in interaction analysis matrix	Heavy—rooted in student teacher reaction to content; questions determined by supervisor and student teacher	Heavy—based on pupil evaluation of student teacher behavioral skills	Little—appeal more generally guesses about "why" in terms of case study
Rapport-building attempted	Definite part of model	Depended upon supervisor	Depended upon supervisor	Definite part of model
Formulation of lesson objectives	Heavy emphasis on student teacher formulation	Behavioral—formed by student teacher subject to approval of supervisor	Required by supervisor; little student teacher participation	Heavy emphasis on student teacher formulation
Supervisors appeared to be trained in method used	Yes	Yes	Yes	Yes
Appeal to data for conclusions	Heavy	Heavy	Moderate; lots of supervisor projection	Light, if any
Scope of conference focus	Broad	Narrow	Narrow	Very broad

cues. There were many attempts to "draw out" the student teacher, who did much of the talking; suggestions were given by the supervisor only toward the end of the conference. The conference was very process-oriented; when data were asked for, they were primarily of the case-study, process type. There was little mention of specific skills but much inference by the student teacher. Long and rambling discussions were held, therapeutic in tone.

Perhaps the most observable characteristic of the Program Four conference was the therapeutic nature of the interaction. The supervisor assumed a Rogerian role and elicited verbal behavior from the student teacher, reinforcing his use of data and offering sympathy when failure was mentioned. The Program Four conference centered around the use of data in the classroom and relied upon the interview with the student teacher to disclose this use of data. The data in question were more of the case-study type than the frequency-county variety. The supervisor focused on "Why do you think they reacted like that?" type of questions. Observable in the conference was a high incidence of supervisor verbal behavior. Part of this could result from the time of the year in which the tapes were taken, since skill training had already occurred in the summer. The supervisor was warm, interacted on a noninterfering basis, and tended to hold suggestions until near the end of the conference.

CONCLUSIONS AND RECOMMENDATIONS

Supervisory approaches within the framework of interaction analysis or microteaching have been receiving growing attention from educators in recent years. This study examined these concepts of supervision as applied to student teaching programs. Four supervisory conferences in each of four such programs were videotaped for analysis by a panel of experts, and information about supervisory conference procedures and behaviors in these programs was presented. A comparative overview of nine areas of conference behavior was then constructed from profiles of conferences in each university (Figure I).

The following conclusions may be drawn from this study:

1. Interaction analysis and microteaching have been successful in achieving specified behavioral changes in the teaching behavior of student teachers.

2. There is a substantial variation in supervisory conference procedures and behaviors from program to program within the interaction analysis and microteaching approaches.

3. Conference procedure and behavior varied less among supervisors within each program than among the programs examined.

ABOUT ERIC

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